

1 **Amendment to the Claims**

2 **In the Claims:**

3 Please amend Claims 1, 12, 19, 24, 31, and 36 as follows:

4 1. (Currently Amended) A method of distributing a processing load in a cluster having a  
5 plurality of resources, comprising the steps of:

6 (a) designating a first resource as an intake providing a specific type of service for  
7 a first session;

8 (b) directing a plurality of new client requests for the specific type of service by  
9 the cluster to the intake to form a first group of clients, wherein each client in the first group  
10 continues to receive ~~services~~ the specific type of service only from the first resource for as long as  
11 ~~those services are~~ the specific type of service is provided;

12 (c) determining that a second resource be designated as a new intake, to balance  
13 the processing load among the plurality of resources;

14 (d) designating the second resource as the new intake and providing an intake  
15 message from the first resource to the plurality of resources in the cluster identifying the second  
16 resource as the intake; and

17 (e) directing successive new client requests for services by the cluster to the new  
18 intake to form a second group of clients, wherein each client in the second group continues to receive  
19 services only from the second resource for as long as those services are provided.

20 2. (Original) The method of Claim 1, wherein the step of designating a first resource as an  
21 intake comprises the steps of:

22 (a) assigning a unique identifier to each resource in the cluster; and

23 (b) selecting the resource that will be designated as a function of its identifier.

24 3. (Original) The method of Claim 1, wherein the step of designating a first resource as an  
25 intake comprises the steps of:

26 (a) calculating a rating value for each resource in the cluster; and

27 (b) selecting the resource that will be designated as a function of the rating value.

28 4. (Original) The method of Claim 1, wherein the step of designating a first resource as an  
29 intake comprises the steps of:

30 (a) calculating a time-out; and

1 (b) selecting the resource that will be designated as a function of the time-out.

2 5. (Original) The method of Claim 1, wherein the step of directing the plurality of new client  
3 requests for service to the intake to form the first group of clients comprises the steps of:

4 (a) receiving a request for service from a new client, wherein the request is  
5 received by a resource other than the intake; and

6 (b) directing the client to the intake.

7  
8 6. (Original) The method of Claim 1, wherein the step of directing the plurality of new client  
9 requests for service to the intake to form a first group of clients comprises the steps of:

10 (a) receiving a request for service from a new client, wherein the request is  
11 received by a resource other than the intake; and

12 (b) transferring the request for service by the new client to the intake.

13 7. (Original) The method of Claim 1, further comprising the steps of:

14 (a) detecting a termination in a service being provided to a client by one of the  
15 plurality of resources;

16 (b) determining that the client is requesting a service from the cluster; and

17 (c) directing the client to a current intake for the service requested by the client.

18  
19 8. (Original) The method of Claim 1, wherein the step of determining that the second  
20 resource be designated comprises the steps of:

21 (a) calculating a load value of the first resource;

22 (b) comparing the load value to a threshold value; and

23 (c) designating the second resource as the new intake, if the load value exceeds the  
24 threshold value.

25 9. (Original) The method of Claim 1, wherein the step of designating the second resource as  
26 the new intake comprises the steps of:

27 (a) calculating a rating value for each resource in the cluster; and

28 (b) selecting the resource that will be designated as a function of the rating value.

1           10. (Original) The method of Claim 1, further comprising the step of periodically  
2 exchanging status messages between the plurality of resources, wherein the step of determining that  
3 the second resource be designated occurs if a status message has not been received from the intake  
4 within a predetermined period of time.

5           11. (Original) The method of Claim 10, wherein the step of designating the second resource  
6 as the new intake comprises the step of the second resource assuming the designation as the new  
7 intake after the second resource fails to receive the status message from the first resource within the  
8 predetermined period of time, said status message identifying the first resource as the intake.

9           12. (Currently Amended) The method of Claim 1, wherein the step of designating the second  
10 resource as the new intake comprises the steps of:

11               (a) ~~providing an intake message from the first resource to the plurality of~~  
12 ~~resources in the cluster identifying the second resource as the intake;~~

13               (b) receiving the intake message at the plurality of resources in the cluster,  
14 including the second resource; and

15               (eb) updating a list at each of the plurality of resources in the cluster, said list  
16 indicating that the second resource has been designated as the new intake.

17           13. (Original) The method of Claim 12, further comprising the step of providing a message  
18 from the second resource to the plurality of resources in the cluster identifying the second resource as  
19 the new intake to confirm that the second resource has accepted its designation as the new intake and  
20 to ensure that the plurality of resources are aware of the new intake.

21           14. (Original) The method of Claim 1, wherein the cluster comprises a plurality of nodes on  
22 which the plurality of resources are implemented, and wherein the step of designating the second  
23 resource as the new intake comprises the steps of:

24               (a) determining that the second resource and first resource reside on a common  
25 node;

26               (b) updating a list stored on the common node, said list indicating that the second  
27 resource is designated as the intake; and

28               (c) providing a message from the second resource designating the second resource  
29 as the intake.  
30

1           15. (Original) The method of Claim 1, further comprising the step of the first resource  
2 providing a data message to the plurality of resources in the cluster, said data message including an  
3 identification of the first resource and a load value of the first resource.

4           16. (Original) The method of Claim 1, further comprising the following steps that are carried  
5 out by a client:

- 6                   (a)     storing a network address for one resource in the cluster;  
7                   (b)     automatically attempting to connect to said one resource at the network  
8 address;  
9                   (c)     receiving from the cluster a network address for the intake for a service  
10 requested by the client; and  
11                   (d)     automatically attempting to connect to the network address for the intake.

12           17. (Original) A machine readable medium having machine-executable instructions for  
13 performing the steps of Claim 1.  
14

15           18. (Original) A machine readable medium having machine-executable instructions for  
16 performing the steps of Claim 16.

17           19. (Currently Amended) A system for distributing a processing load in a cluster,  
18 comprising:

- 19                   (a)     at least one processor for implementing the cluster, said at least one processor  
20 comprising a plurality of resources that provide services to a plurality of clients;  
21                   (b)     an interface for coupling said at least one processor to the plurality of clients;  
22                   (c)     a memory in which a plurality of machine instructions are stored; and  
23                   (d)     said machine instructions, when executed by said at least one processor  
24 implementing:  
25                   (i)     a first resource operatively connected to the plurality of clients, said  
26 first resource being designated as an intake that accepts requests from new clients for a service, and  
27 in response thereto, ~~forming~~ forms a first group of clients that continue to receive services only from  
28 the first resource for as long as those services are provided and are needed;  
29  
30

1 (ii) said first resource determining to designate a second resource from  
2 among the plurality of resources as a new intake, the second resource being connected in  
3 communication with the first resource; and

4 (iii) designating the second resource as the new intake to accept successive  
5 new client requests for service, forming a second group of clients that continue to receive services  
6 from the second resource for as long as those services are provided and are needed; and

7 (iv) providing an intake message from the first resource to the plurality of  
8 resources in the cluster identifying the second resource as the intake.

9 20. (Original) The system of Claim 19, wherein the machine instructions further cause a new  
10 client request for service to be directed to a resource currently designated as the intake.

11 21. (Original) The system of Claim 19, wherein the machine instructions are executed in a  
12 plurality of instances by a plurality of processors.

13 22. (Original) The system of Claim 19, wherein a first instance of the machine instructions  
14 for load balancing are executed to manage the first resource and a second instance of the machine  
15 instructions for load balancing are executed to manage the second resource, said machine instructions  
16 causing said first instance to communicate with said second instance, and wherein said first instance  
17 of the machine instructions cause the first resource to transfer the intake designation to the second  
18 resource.

19 23. (Original) The system of Claim 19, further comprising a client device having a client  
20 processor and a client memory in which are stored:

21 (a) machine instructions; and

22 (b) a list that includes at least one network address corresponding to at least one  
23 resource in the cluster, said machine instructions stored in the client memory causing the client  
24 processor to:

25 (i) automatically attempt to connect to said at least one resource using the  
26 network address corresponding thereto;

27 (ii) receive from the cluster an intake network address corresponding to a  
28 resource designated as the intake for said at least one service; and

29 (iii) automatically attempt to connect to the intake network address.  
30

1           24. (Currently Amended) A method of distributing a processing load among a cluster of  
2 nodes, each node providing at least one of a plurality of different types of services, comprising the  
3 steps of:

- 4                   (a)     designating a first instance of a first type of service on a first node as an intake;  
5                   (b)     directing new client requests for said first type of service to the intake to form  
6 a first group of clients, wherein each client in the first group continues to receive services only from  
7 the first instance on the first node for as long as those services are provided and are needed;  
8                   (c)     determining that a second instance of the first type of service be designated as  
9 a new intake for the first type of service;  
10                  (d)     designating the second instance as the new intake for the first type of service  
11 and providing an intake message from the first node designated as the intake for the first instance to the  
12 nodes in the cluster identifying the second instance designated as the new intake for the first type of  
13 service; and  
14                  (e)     directing a plurality of successive new client requests for the first type of  
15 service to the new intake to form a second group of clients, wherein each client in the second group  
16 continues to receive services only from the second instance for as long as those services are provided  
17 and are needed.

18           25. (Original) The method of Claim 24, wherein the step of directing new client requests for  
19 said first type of service to the intake to form a first group of clients comprises the steps of:

- 20                   (a)     receiving from a new client a request for said first type of service, wherein the  
21 request is received at a node other than the node on which the intake is designated; and  
22                   (b)     directing the client to the intake.

23           26. (Original) The method of Claim 24, wherein the step of directing a plurality of new  
24 client requests for service to the intake to form a first group of clients comprises the steps of:

- 25                   (a)     receiving from a new client a request for said first type of service, wherein the  
26 request is received at a node other than the node on which the intake is designated; and  
27                   (b)     transferring the request for service by the new client to the intake.

1           27. (Original) The method of Claim 24, wherein the step of determining to designate a  
2 second instance as the new intake comprises the steps of:

- 3                   (a)     calculating a load value for the first node, said load value being normalized to  
4 enable a uniform comparison to corresponding load values for the other nodes of the cluster;  
5                   (b)     comparing the load value for the first node with a threshold value; and  
6                   (c)     designating the second instance as the new intake, if the load value exceeds the  
7 threshold value.

8           28. (Original) The method of Claim 24, wherein the step of designating the second instance as  
9 the new intake for the first type of service comprises the steps of:

- 10                   (a)     calculating a rating value for each resource in the cluster; and  
11                   (b)     selecting the resource that will be designated as a function of the rating value.

12           29. (Original) The method of Claim 24, further comprising the step of periodically exchanging  
13 status messages between the plurality of nodes, wherein the step of determining that the second  
14 resource be designated occurs if a status message has not been received from the intake within a  
15 predetermined period of time.

16           30. (Original) The method of Claim 29, wherein the step of designating the second instance  
17 as the new intake for the first type of service comprises the steps of a second node assuming authority  
18 to designate the second instance as the new intake; and automatically selecting the second instance as  
19 the new intake from a plurality of instances of the first type of service on the second node after the  
20 second node fails to receive the status message from the first instance within a predetermined period  
21 of time, said status message identifying the first service instance as the intake.

22           31. (Currently Amended) The method of Claim 24, wherein the step of designating the second  
23 instance as the new intake for the first type of service comprises the steps of:

- 24                   (a)     ~~providing an intake message from the first node holding the first instance to the~~  
25 ~~nodes in the cluster identifying the second instance as the intake;~~  
26                   (b)     receiving the intake message at the nodes in the cluster, including a second  
27 node on which the second instance is executing; and  
28                   (eb)    updating a list at the nodes in the cluster, said list indicating that the second  
29 instance has been designated as the new intake.  
30

1           32. (Original) The method of Claim 31, further comprising the step of providing a message  
2 from the second node to the nodes in the cluster, said message identifying the second instance as the  
3 new intake to confirm that the second instance has accepted its designation as the new intake and to  
4 ensure that the plurality of nodes are aware of the new intake.

5           33. (Original) The method of Claim 24, wherein the step of designating the second instance  
6 as the new intake comprises the steps of:

7                   (a) determining that the second instance and first instance reside on a common  
8 node;

9                   (b) updating a list stored on the common node, said list indicating that the second  
10 instance is designated as the new intake; and

11                   (c) providing a message from the common node to the nodes in the cluster, said  
12 message identifying the second instance as the new intake.

13           34. (Original) The method of Claim 24, further comprising the step of providing a data  
14 message from the first node to the plurality of nodes in the cluster, said data message including an  
15 identification of the first instance and a load value of the first node.

16           35. (Original) The method of Claim 24, further comprising the step of sending a service  
17 message from the first instance to a control process executing on the first node, said service message  
18 including a unique identification of the first instance and operational status parameters of the first  
19 instance that the control process uses to calculate a rating value for the first instance and a load value  
20 for the node that are used to determine a future intake designation.

21           36. (Currently Amended) A system for distributing a processing load in a cluster of  
22 resources, comprising:

23                   (a) means for enabling communication between the resources comprising the  
24 cluster;

25                   (b) means for enabling communication between the resources comprising the  
26 cluster and a plurality of clients requesting services from said resources;

27                   (c) means for designating a first resource as an intake so that the first resource  
28 accepts requests from new clients for a service, and in response thereto, forms a first group of clients  
29 that continue to receive the services service only from the first resource for as long as ~~these services~~  
30 are the service is provided and needed;



1 (d) means for determining to designate a second resource as a new intake; ~~and~~  
2 (e) means for designating a second resource as the new intake so that the second  
3 resource begins to accept successive requests from new clients for the service, and in response thereto,  
4 forms a second group of clients that continue to receive ~~services~~ the service only from the second resource  
5 for as long as ~~these services are~~ the service is provided; and  
6 (f) providing an intake message from the first resource to the plurality of resources  
7 in the cluster identifying the second resource as the intake.  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30